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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,894	08/27/2002	Decpa Ramaswamy	200-1576	7972
28395	7590	12/13/2006	EXAMINER	
BROOKS KUSHMAN P.C./FGTL 1000 TOWN CENTER 22ND FLOOR SOUTHFIELD, MI 48075-1238			BEHNCKE, CHRISTINE M	
			ART UNIT	PAPER NUMBER
			3661	

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,894

Applicant(s)

RAMASWAMY ET AL.

Examiner

Christine M. Behncke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the Amendment and Remarks filed 2 October 2006, in which claims 19-39 were presented for examination.

Response to Arguments

2. Applicant's arguments with respect to newly amended claims 19-39 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 38 and 39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claims 38 and 39 include the limitation: "wherein each control portion may be removed from the controller without disrupting operations of the other control portions". However, the original disclosure only supports removable control portions, which may be replaced by removing a certain portion and installing a replacement portion ([0026]). Nowhere in the original disclosure is it described that a control portion may be removed, and not further replaced, from the controller without disrupting operations of the other portions. The disclosure describes the opposite; since the disclosure describes the control portions as integrated and

wherein one controller affects the others ([0028]), removing a control portion without a replacement will cause great disruption to the described system.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Specification

4. The disclosure is objected to because of the following informalities:

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claims 38 and 39 include the limitation: "wherein each control portion may be removed from the controller without disrupting operations of the other control portions". As explained above regarding claims 38 and 39, the original disclosure only supports removable control portions, which may be replaced by removing a certain portion and installing a replacement portion ([0026]). Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 19-21, 23-25, 27, 28, 30, 34, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Horsley et al., US 6,464,026.

(**Claim 19**) Horsley et al. discloses a vehicle system controller for a vehicle comprising: a vehicle mode control portion (control system B, column 6, lines 28-45); an output torque requestor control portion (control system E, column 4, lines 45-53); a battery management control portion (EMG controller 42, column 5, lines 11-31 and figure 10); a driver information control portion (figure 12, column 13, 25-53); an energy management control portion (control system E, column 4, lines 45-53); a brake system control portion (energy management system 40, column 6, lines 9-27); an engine start/stop control portion (control system B, column 6, lines 46-64); and a torque estimation control portion (control system B, column 6, lines 46-64).

(**Claim 20**) Horsley et al. further discloses wherein the vehicle mode control portion determines an operating mode for the vehicle and communicates the operating mode of the vehicle to the other control portions so that the other control portions may function according to the current vehicle mode (column 6, line 28-column 7, line 9).

(**Claim 21**) Horsley et al. further disclose wherein the vehicle mode control portion determines faults prior to starting and stopping the vehicle and during vehicle operation in order to insure the other control portions respond to the fault before proceeding (figure 10, column 12, lines 5-34).

(**Claim 23**) Horsley et al. further discloses wherein the output torque requestor control portion receives and handles all torque commands from requesting devices within the vehicle and determines a final wheel torque that powertrain and regenerative braking systems must produce (figure 4, column 4, lines 45-53, column 5, line 45-column 6, line 27).

(**Claim 24**) Horsley et al. further discloses wherein the output torque requestor control portion combines driver demands from accelerator and brake pedals and arbitrates requests from cruise control, traction control, interactive vehicle dynamics, and vehicle speed limiting systems when determining the final wheel torque (column 7, lines 10-40, column 8, lines 19-60, and column 10, lines 1-17).

(**Claim 25**) Horsley et al. further discloses wherein the output torque requestor control portion divides the final wheel torque between vehicle powertrain and brake assemblies and issues corresponding commands to an engine controller control, transaxle controller and brake controller (column 4, lines 45-53).

(**Claim 27**) Horsley et al. further discloses wherein the battery management control portion reads and processes discharge/charge power limits from a battery controller and monitors a battery for faults and communicates this information to the other control portions (column 2, lines 35-60, figures 10 and 11).

(**Claim 28**) Horsley et al. further discloses wherein the driver information control portion receives signals from vehicle sensors and controllers and calculates vehicle operating data that is conveyed to the driver (figure 12, column 13, 25-53).

(**Claim 30**) Horsley et al. further discloses wherein the energy management control portion controls power flow between an engine, motor, generator, battery, and wheels (column 4, lines 45-53).

(**Claim 34**) Horsley et al. further discloses wherein the engine start/stop control portion contains logical conditions used to decide whether to turn on/off the engine or, if already “on”, whether to keep the engine “running” (column 6, lines 46-64).

(**Claim 36**) Horsley et al. further discloses wherein the torque estimation control portion estimates torque produced by an engine and transaxle (column 10, lines 1-17 and lines 45-53).

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 22, 26, 31, 33, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horsley et al. in view of Ostberg et al., US 2002/0065589.

Horsley et al. discloses a vehicle mode control to adjust the operating strategy in cases of emission restriction, torque demand, and etc. Horsley et al. does not explicitly disclose selecting a limited operating strategy with which to operate the remaining functional powertrain components. However, Ostberg et al. teaches monitoring the torque and functionality of powertrain components and selecting a limited operating strategy to operate remaining functional powertrain components or shuts down the vehicle when a fault is detected ([0065]-[0066]). It would have been obvious to one of ordinary skill in the automotive art to combine the teachings of Ostberg et al. with the

system of Horsley et al. because the reconfiguration of operation strategy increases the safety of the vehicle by allowing the driver to "limp" home or to help ([0066]).

Horsley et al. discloses a battery management control portion that monitors battery temperature, voltage, and controls the operations of the batteries based upon the vehicle mode signals received (column 10, lines 1-53). Horsley et al. does not explicitly disclose controlling the opening/closing of contactors in a battery pack. However, Ostberg et al. teaches a battery management controller that interfaces with a battery controller and controls opening and closing of contactors in a battery pack ([0055]-[0057]). It would have been obvious to one of ordinary skill in the automotive art at the time of the invention to combine the controller of Horsley et al. with the teachings of Ostberg et al. because as Ostberg et al. suggests the control of the contactors and breakers of the battery packs is the most efficient and well-known method of controlling voltage flow to and from the batteries.

Horsley et al. further discloses a brake system controlling regenerative braking of a parallel hybrid vehicle, and does not disclose controlling the regenerative braking based on whether the braking is for series regenerative braking or parallel regenerative braking. However, Ostberg et al. teaches a well known hybrid configuration includes a power-split hybrid propulsion system, wherein the controllers control the vehicle functions including the regenerative braking control process based on whether a series or parallel regenerative braking is selected ([0005] and [0064]-[0065]). It would have been obvious to one of ordinary skill in the automotive art to combine the teachings of Ostberg et al. with the system of Horsley et al. because as Ostberg et al. suggests the

power-split hybrid control allows for the most versatility of the hybrid and the greatest efficiency ([0008]-[0018]).

Horsley et al. discloses a control portion controlling the starting/stopping of the vehicle engine but does not explicitly disclose coordinating timing and operation of the engine, coordinating engine and transaxle controllers to minimize noise, vibrations, "harshness", and emissions. However, Ostberg et al. teaches controlling the engine starting/stopping timing and coordination with the transaxle controller in order to minimize undesirable noise, vibrations, "harshness" and emissions ([0022], [0026], [0061]-[0066]).

Ostberg et al. further teaches wherein a torque estimation control portion receives torque estimates from an engine controller and transaxle controller and compares the engine controller estimate to the transaxle controller estimate such that if the estimates vary beyond a certain threshold value, the torques estimation control portion notifies portion the vehicle mode control portion of a potential fault condition ([0060]-[0066]). It would have been obvious to one of ordinary skill in the art to combine the teachings of Ostberg et al. with the system of Horsley et al. because as Ostberg et al. suggests, the monitoring of torques estimates from the engine and transaxle controllers improve vehicle efficiency and safety by determining and monitoring torque limitations of the individual components and adjusting the vehicle control to allow the vehicle to "limp" home in case of fault ([0065]-[0066]).

Claim Rejections - 35 USC § 103

7. **Claim 32** is rejected under 35 U.S.C. 103(a) as being unpatentable over Horsley et al. in view of Ostberg et al. as applied to claim 31 above, and further in view of Morisawa et al., US 6,334,498.

Neither Horsley et al. nor Ostberg et al. explicitly disclose wherein is regenerative braking is not available then engine, output shaft, gear set and drive train is used to brake the vehicle. However, Morisawa et al. teaches it was well known in the automotive art to use engine braking capabilities in a hybrid vehicle when the regenerative braking is not enough or not available to suppress vehicle speed (column 11, lines 29-64). Morisawa et al. suggests this is an efficient and safe method of braking the vehicle and improve braking performance and drivability.

Claim Rejections - 35 USC § 103

8. **Claim 29** is rejected under 35 U.S.C. 103(a) as being unpatentable over Horsley et al. in view of Gollomp et al., US 6,424,157.

Horsley et al. discloses a driver information control portion that receives signals from the vehicle systems and conveys data to the driver (column 6, lines 9-45); but does not explicitly disclose conveying vehicle speed, battery charge, and battery available power. However, Gollomp et al. teaches a system for monitoring a hybrid vehicle battery, which includes receiving information regarding the battery and conveying data associated with vehicle speed, battery state of charge, and available battery power to an instrument panel or other display (column 3, lines 58-column 4, line 51). Gollomp et al. teaches it would have been obvious to one of ordinary skill in the art at the time of the invention to display monitored battery conditions to a driver of a hybrid vehicle in

order to increase the life of the battery and efficiency of the vehicle with proper monitoring and warnings for possible faults (column 5, lines 3-21).

Claim Rejections - 35 USC § 103

9. **Claims 38 and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Horsley et al. in view of Colson et al., US 6,236,909.

Horsley et al. discloses the vehicle system controller for a vehicle as applied to claim 1, but does not disclose wherein each control portion may be removed and replaced from the controller without disrupting operations of the other control portions. However, Colson et al. teaches a modular vehicle system controller, wherein each respective software control portion corresponds to a vehicle drive system functionality and may be changed by removing one or more of the integrated software control portions and replacing it with a substitute control portion without disrupting operations of the other control portions (column 1, lines 16-27, column 5, lines 50-65 and Figures 7a-c). It would have been obvious to one of ordinary skill in the automotive art to combine the modular vehicle system of Colson et al. to the hybrid vehicle of Horsley et al. because as Colson et al. suggests, the method of representing and delivering JavaBeans may be broadly applied to any automotive computing environment having a computing platform or may be modified to interface with the gateway of the invention (column 4, lines 16-32) and the modularity of the computing architecture allows for a decrease in development time and allows the system to be more easily updated by an authorized party (column 2, lines 7-35).

Conclusion

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10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine M. Behncke whose telephone number is (571) 272-8103. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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